

Summary of the activity and results obtained in the project in 2025

Project number: 25.80012.5107.12SE

Summary in English

Determining the relationships between symbiotic nitrogen-fixing microorganisms, biotic and abiotic factors aimed at increasing the level of protection and productivity of soybean

The tripling of international travel and trade in recent decades has accelerated the spread of harmful organisms on Earth, causing considerable damage to native plants and the environment. These phenomena are particularly serious in one of the valuable crops, such as soybean, recording stagnation of the main indicators, including the reduction of areas, production volumes and yields. The impact of harmful organisms permanently causes considerable damage (about 30-40% of crops or complete compromise of agricultural crops), causing serious ecological problems.

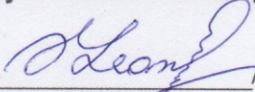
Although Moldovan agriculture is recording significant results in increasing the area, production volume and export of various groups of agricultural crops, soybean production indicators are still reaching modest growth rates, fluctuating areas, production volume and harvest per hectare, which determines the need to intensify investigations aimed at improving the nominated indices.

Arguing the need to change the paradigm of plant protection in plant health based on the substantiation of the biospheric role of plants, especially leguminous crops, which fix atmospheric nitrogen, we managed to highlight natural factors and mechanisms of their application, monitoring photosynthetic indicators and natural (anhydrous silicon dioxide) and anthropogenic factors (highlighting and identifying phytopathogenic agents of diseases, their relationships with useful antagonistic microorganisms, testing approved microbiological preparations for combating phytopathogenic agents.

In order to achieve the goal and objectives of the project, the biological peculiarities of strains of microorganisms active in combating pathogens and promising for the creation of effective ecological means were highlighted, isolated, identified and determined, the relationships between useful microorganisms and the main phytopathogenic agents were determined, as well as the testing of useful microorganisms in combating them.

The recorded results represent a way to combat phytopathogenic agents of soybean, which is characterized as an obvious innovative factor aimed at solving practical problems for maintaining optimal phytosanitary status and increasing soybean crop productivity in conventional and organic agriculture.

As a result of the activities within the project, in addition to highlighting the ways to regulate the density of pathogen populations and maintain the harvest of this crop, the greening of plant protection activities is recorded by applying natural and anthropogenic mechanisms for regulating the density of pathogen populations, which is embodied in the technological processes and activities within the systems for obtaining and processing organic agri-food products.

Conducătorul de proiect  (VOLOȘCIUIC Leonid)

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